

ARCS PROCEDURE:	MPL OPTICAL SYSTEM CALIBRATION CHECK (CALC)	PRO(MPL)-013.003 7 February 2002 Page 1 of 2
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MPL Optical System Calibration Check (CALC)

I. Purpose:

The purpose of this procedure is to describe the steps performed by the RESET team to check the calibration of the MPL optical system performance at the ARCS sites. **Note: This procedure is not yet performed during routine RESET visits.**

II. Cautions and Hazards:

- Laser safety glasses must be worn during this procedure.
- Only RESET team personnel who have successfully completed a laser safety course perform this procedure.
- Take care to avoid damage to the optical elements of the MPL.

III. Requirements:

- A calibrated laser energy meter.
- A large integrating sphere.

IV. Procedure:

A. Steps:

1. Notify data system of calibration.
2. Put on laser safety glasses.
3. Open enclosure below telescope exposing laser optical path.
4. Log present value of detector signal from MPL display (unlabeled with units of uJ, second from bottom on left-hand side).
5. Place energy meter in beam in front of detector (the meter with the tube aperture, not the one with the open face).
6. Log energy meter reading.
7. Compare ratio of detector/energy meter reading determined when MPL was first setup (5.23 uJ displayed value, 27 \pm 0.4 mW from detector).
8. If ratio differs by more than \pm 10% notify mentor.
9. Log value of lidar return signal strength with the beam blocked.
10. If lidar return signal greater than \pm 10% of beam blocked value when MPL was first setup, notify mentor.

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V. References:

1. Spinhirne, J. D., J. A. R. Rall and V. S. Scott: "Compact Eye Safe Lidar Systems," Rev. of Laser Engineering (submitted) 6p., 1995.
2. Gaffney, J. "MPL Instrument Manual," 1995.